

The Impact of Ultrasonic Field to Increase the Biodegradability of Leachate from The Landfill

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Abstract : Complex and variable during operation of the landfill leachate composition prevents the use of a single universal method of their purification. Due to the presence of difficult biodegradable these substances in the wastewater, cleaning of them often requires the use of biological methods (activated sludge or anaerobic digestion), also often supporting by physicochemical processes. Currently, more attention is paid to the development of unconventional methods of disposal of sewage m.in ultleniańskich advanced methods including the use of ultrasonic waves. It was assumed that the ultrasonic waves induce change in the structure of organic compounds and contribute to the acceleration of biodegradability, including refractive substances in the leachate, so that will increase the effectiveness of their treatment in biological processes. We observed a marked increase in BOD leachate when subjected to the action of ultrasonic waves. Ratio BOD / COD was 27% higher compared to the value of this ratio for leachate nienadźwiękowanymi. It was found that the process of sonification leachate clearly influenced the formation and release of aliphatic compounds. These changes suggest a possible violation of the chemical structure of organic compounds in the leachate thereby give compounds of the chemical structure more susceptible to biodegradation.

Keywords : IR spectra, landfill leachate, organic pollutants, ultrasound

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